

Material Safety Data Sheet

According to OSHA and ANSI

Printing date 08/09/2011

Reviewed on 08/04/2011

1 Identification of the substance/mixture and of the company/undertaking**Product identifier****Product name:** Diphenylamine**Stock number:** A18265, L04729**CAS Number:**

122-39-4

EC number:

204-539-4

Index number:

612-026-00-5

Relevant identified uses of the substance or mixture and uses advised against.**Sector of Use** SU24 Scientific research and development**Details of the supplier of the safety data sheet****Manufacturer/Supplier:**

Alfa Aesar, A Johnson Matthey Company

Johnson Matthey Catalog Company, Inc.

30 Bond Street

Ward Hill, MA 01835-8099

Tel: 800-343-0660

Fax: 800-322-4757

Email: tech@alfa.com

www.alfa.com

Information Department: Health, Safety and Environmental Department**Emergency telephone number:**

During normal hours the Health, Safety and Environmental Department at (800) 343-0660. After normal hours call Carechem 24 at (866) 928-0789.

2 Hazards identification**Classification of the substance or mixture**

GHS06 Skull and crossbones

H301 Toxic if swallowed.

H311 Toxic in contact with skin.

H331 Toxic if inhaled.



GHS08 Health hazard

H373 May cause damage to organs through prolonged or repeated exposure.



GHS09 Environment

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

Classification according to Directive 67/548/EEC or Directive 1999/45/EC

T; Toxic

R23/24/25: Toxic by inhalation, in contact with skin and if swallowed.



N; Dangerous for the environment

R50/53: Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R33: Danger of cumulative effects.

Information concerning particular hazards for human and environment: Not applicable**Label elements****Labelling according to EU guidelines:****Code letter and hazard designation of product:**

T Toxic

N Dangerous for the environment

Risk phrases:

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

33 Danger of cumulative effects.

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50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

- 28 After contact with skin, wash immediately with plenty of soap and water
 36/37 Wear suitable protective clothing and gloves.
 45 In case of accident or if you feel unwell, seek medical advice immediately.
 60 This material and its container must be disposed of as hazardous waste.
 61 Avoid release to the environment. Refer to special instructions/Safety data sheets

Hazard description:**WHMIS classification**

D1A - Very toxic material causing immediate and serious toxic effects

**Classification system****HMIS ratings (scale 0-4)**

(Hazardous Materials Identification System)

HEALTH	2
FIRE	1
REACTIVITY	1

Health (acute effects) = 2

Flammability = 1

Reactivity = 1

Other hazards**Results of PBT and vPvB assessment**

PBT: Not applicable.

vPvB: Not applicable.

3 Composition/information on ingredients**Chemical characterization: Substances****CAS# Description:**

Diphenylamine (CAS# 122-39-4)

Identification number(s):

EC number: 204-539-4

Index number: 612-026-00-5

4 First aid measures**Description of first aid measures****General information**

Immediately remove any clothing soiled by the product.

Remove breathing apparatus only after contaminated clothing has been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm.

Seek immediate medical advice.

After skin contact

Immediately wash with water and soap and rinse thoroughly.

Seek immediate medical advice.

After eye contact

Rinse opened eye for several minutes under running water. Then consult a doctor.

After swallowing

Do not induce vomiting; immediately call for medical help.

Seek immediate medical advice.

Information for doctor**Most important symptoms and effects, both acute and delayed**

No further relevant information available.

Indication of any immediate medical attention and special treatment needed

No further relevant information available.

5 Firefighting measures**Extinguishing media****Suitable extinguishing agents**

Carbon dioxide, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

Special hazards arising from the substance or mixture

In case of fire, the following can be released:

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Carbon monoxide and carbon dioxide

Nitrogen oxides (NOx)

Possibly Hydrogen cyanide (HCN)

Advice for firefighters**Protective equipment:**

Wear self-contained respirator.

Wear fully protective impervious suit.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Ensure adequate ventilation

Environmental precautions:

Do not allow material to be released to the environment without proper governmental permits.

Methods and material for containment and cleaning up:

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

Reference to other sections

See Section 7 for information on safe handling

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

7 Handling and storage**Handling****Precautions for safe handling**

Handle under dry protective gas.

Keep container tightly sealed.

Store in cool, dry place in tightly closed containers.

Ensure good ventilation at the workplace.

Open and handle container with care.

Information about protection against explosions and fires: No information known.**Conditions for safe storage, including any incompatibilities****Storage****Requirements to be met by storerooms and receptacles:** No special requirements.**Information about storage in one common storage facility:**

Store away from oxidizing agents.

Store away from air.

Store in the dark.

Further information about storage conditions:

Store under dry inert gas.

Keep container tightly sealed.

Store in cool, dry conditions in well sealed containers.

Protect from exposure to light.

This product is air sensitive.

Specific end use(s) No further relevant information available.**8 Exposure controls/personal protection****Additional information about design of technical systems:**

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

Components with limit values that require monitoring at the workplace:

Diphenylamine

mg/m³

ACGIH TLV 10; Not classifiable as a human carcinogen

Australia TWA 10

Austria MAK 10

Belgium TWA 10

Denmark TWA 5

France VME 10

Korea TLV 10; Not classifiable as a human carcinogen

Netherlands MAC-TGG 0.7

Norway TWA 5

Switzerland MAK-W 10

OSHA PEL 10

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Control parameters**Components with limit values that require monitoring at the workplace:****Additional information:** No data**Exposure controls****Personal protective equipment****General protective and hygienic measures**

The usual precautionary measures for handling chemicals should be followed.

Keep away from foodstuffs, beverages and feed.

Remove all soiled and contaminated clothing immediately.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

Breathing equipment: Use suitable respirator when high concentrations are present.**Protection of hands:**

Check protective gloves prior to each use for their proper condition.

Impervious gloves**Material of gloves**

The selection of suitable gloves not only depends on the material, but also on quality.

Quality will vary from manufacturer to manufacturer.

Eye protection: Safety glasses**Body protection:** Protective work clothing.**9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Flakes
Color:	Off-white
Odor:	Weak
Odour threshold:	Not determined.

pH-value: Not applicable.**Change in condition**

Melting point/Melting range:	52-56°C (126-133 °F)
Boiling point/Boiling range:	302°C (576 °F)
Sublimation temperature / start:	Not determined

Flash point: 152°C (306 °F)**Flammability (solid, gaseous)** Not determined.**Ignition temperature:** 630°C (1166 °F)**Decomposition temperature:** Not determined**Auto igniting:** Not determined.**Danger of explosion:** Product does not present an explosion hazard.**Explosion limits:**

Lower:	Not determined
Upper:	Not determined

Vapor pressure: Not applicable.**Density at 20°C (68 °F):** 1.16 g/cm³ (9.68 lbs/gal)**Relative density** Not determined.**Vapour density** Not applicable.**Evaporation rate** Not applicable.**Solubility in / Miscibility with****Water at 25°C (77 °F):** 0.05 g/l**Segregation coefficient (n-octanol/water):** Not determined.**Viscosity:**

dynamic:	Not applicable.
kinematic:	Not applicable.
Other information	No further relevant information available.

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10 Stability and reactivity**Reactivity****Chemical stability****Thermal decomposition / conditions to be avoided:**

Decomposition will not occur if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known**Incompatible materials:**

Air

Light

Hazardous decomposition products:

Carbon monoxide and carbon dioxide

Nitrogen oxides

Possibly Hydrogen cyanide (HCN)

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values that are relevant for classification:**

Oral	LD50	1230 mg/kg (mouse) 1120 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rabbit)

Primary irritant effect:**on the skin:** May cause irritation**on the eye:** May cause irritation**Sensitization:** No sensitizing effects known.**Other information (about experimental toxicology):**

Reproductive effects have been observed on tests with laboratory animals.

Subacute to chronic toxicity:**Subacute to chronic toxicity:**

The Registry of Toxic Effects of Chemical Substances (RTECS) reports the following effects in laboratory animals:

Behavioral - somnolence (general depressed activity).

Lungs, Thorax, or Respiration - respiratory depression

Lungs, Thorax, or Respiration - cyanosis.

Gastrointestinal - alteration in gastric secretion.

Kidney, Ureter, Bladder - changes in tubules (including acute renal failure, acute tubular necrosis).

Kidney, Ureter, Bladder - proteinuria.

Kidney, Ureter, Bladder - other changes in urine composition.

Kidney, Ureter, Bladder - other changes.

Blood - other changes.

Blood - methemoglobinemia-carboxyhemoglobin.

Nutritional and Gross Metabolic - weight loss or decreased weight gain.

Related to Chronic Data - death.

Reproductive - Specific Developmental Abnormalities - urogenital system.

Reproductive - Effects on Newborn - growth statistics (e.g.%, reduced weight gain).

Reproductive - Fertility - litter size (e.g. # fetuses per litter; measured before birth).

Subacute to chronic toxicity:

Absorption into the body may lead to the formation of methemoglobin, producing cyanosis, and marked fall in blood pressure leading to collapse, coma and possibly death. Onset may be delayed 2-4 hours or longer.

Additional toxicological information:

To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

Danger through skin absorption.

ACGIH A4: Not classifiable as a human carcinogen: Inadequate data on which to classify the agent in terms of its carcinogenicity in humans and/or animals.

12 Ecological information**Toxicity****Aquatic toxicity:** No further relevant information available.**Persistence and degradability** No further relevant information available.**Behavior in environmental systems:****Bioaccumulative potential** No further relevant information available.**Mobility in soil** No further relevant information available.**Ecotoxicological effects:****Remark:** Very toxic for aquatic organisms

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Additional ecological information:**General notes:**

Do not allow product to reach ground water, water course or sewage system, even in small quantities.

Danger to drinking water if even extremely small quantities leak into the ground.

Also poisonous for fish and plankton in water bodies.

Do not allow material to be released to the environment without proper governmental permits.

Very toxic for aquatic organisms

Results of PBT and vPvB assessment**PBT:** Not applicable.**vPvB:** Not applicable.**Other adverse effects** No further relevant information available.**13 Disposal considerations****Waste treatment methods****Recommendation** Consult state, local or national regulations to ensure proper disposal.**Uncleaned packagings:****Recommendation:** Disposal must be made according to official regulations.**14 Transport information****UN-Number**

DOT, ADR, IMDG, IATA

UN3077

UN proper shipping name

DOT, IMDG, IATA

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. (Diphenylamine)

ADR

3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. (Diphenylamine)**Transport hazard class(es)**

DOT, IMDG, IATA

**Class**9 Miscellaneous dangerous substances and
articles.**Label**

9

ADR**Class**9 (M7) Miscellaneous dangerous substances and
articles**Label**

9

Packing group

DOT, ADR, IMDG, IATA

III

Environmental hazards:**Marine pollutant:**

Yes (P)

Symbol (fish and tree)

Special marking (ADR):

Symbol (fish and tree)

Special marking (IATA):

Symbol (fish and tree)

Special precautions for userWarning: Miscellaneous dangerous substances and
articles**Danger code (Kemler):**

90

EMS Number:

F-A,S-F

**Transport in bulk according to Annex II of
MARPOL73/78 and the IBC Code**

Not applicable.

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Transport/Additional information:**DOT****Remarks:**

Special marking with the symbol (fish and tree).

UN "Model Regulation":UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE,
SOLID, N.O.S. (Diphenylamine), 9, III**15 Regulatory information****Safety, health and environmental regulations/legislation specific for the substance or mixture****Product related hazard informations:****Hazard symbols:**

T Toxic

N Dangerous for the environment

Risk phrases:

23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

33 Danger of cumulative effects.

50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Safety phrases:

28 After contact with skin, wash immediately with plenty of soap and water

36/37 Wear suitable protective clothing and gloves.

45 In case of accident or if you feel unwell, seek medical advice immediately.

60 This material and its container must be disposed of as hazardous waste.

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National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

Information about limitation of use:

For use only by technically qualified individuals.

This substance is subject to a Significant New Use Rule (SNUR) promulgated under Section 5(a) (2) of the Toxic Substances Control Act (TSCA). See 40 CFR 721. This product is being sold for research and development use.

This product is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know Act of 1986 and 40CFR372.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.**16 Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing MSDS: Health, Safety and Environmental Department.**Contact:**

Zachariah C. Holt

Global EHS Manager

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

P: Marine Pollutant

EINECS: European Inventory of Existing Commercial Chemical Substances

CAS: Chemical Abstracts Service (division of the American Chemical Society)

HMIS: Hazardous Materials Identification System (USA)

WHMIS: Workplace Hazardous Materials Information System (Canada)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent